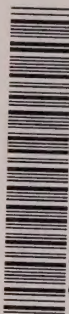


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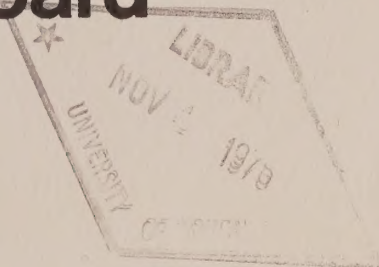


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Publications



# Ontario Energy Board



ENVIRONMENTAL, AGRICULTURAL  
AND RESOURCE GUIDELINES FOR THE  
CONSTRUCTION AND OPERATION OF  
PIPELINES IN THE PROVINCE OF ONTARIO

September 1976



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ENVIRONMENTAL, AGRICULTURAL AND RESOURCE GUIDELINES FOR  
THE CONSTRUCTION AND OPERATION OF PIPELINES IN THE  
PROVINCE OF ONTARIO

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Introduction

The Ontario Energy Board has jurisdiction to authorize the construction of certain pipelines and facilities and to authorize expropriation of land for the purpose of such pipelines and facilities. Such authority may be granted by the Board where the Board is of the opinion that the construction or expropriation "is in the public interest".

In considering applications of this nature, the Board conducts public hearings and acts quasi-judicially. Each application is decided on its merits and the Board, in arriving at its opinion as to whether it is in the overall public interest that the application be granted, has regard to the numerous factors that affect the public interest. Obviously some of these factors are the physical and economic feasibility of the project and the following of proper construction and engineering standards. It is appropriate as well for the Board to consider the concern of the Province for the safety of its citizens and their property, for the protection of the environment and of natural and agricultural resources, and for the minimizing of interference with the orderly process of land use planning.





With the latter considerations in mind, these guidelines have been prepared in consultation with a Committee composed of representatives of the Ministries of Agriculture and Food, Consumer and Commercial Relations, Energy, Environment, Housing, and Natural Resources, together with members of the Ontario Energy Board and its staff.

These guidelines are not intended to create new law or to conflict with the present law. While certain references to legal requirements appear herein, such references are not intended to represent all the statutory requirements to be complied with in construction of pipelines and facilities.

The Board will expect that at the appropriate hearing applicants will undertake to comply in respect of the project, wherever practicable, with the guidelines before, during and after construction, and will provide evidence as to what it has done to comply, and to ensure future compliance with the guidelines. Where for any reason the applicant does not consider that strict adherence to the guidelines will be practicable, or considers that the public interest is such as to override the desirability of strict adherence to the guidelines, the Board will expect the applicant to establish to the satisfaction of the Board that such strict adherence is impracticable or not in the overall public interest.



The early consideration by the applicant of the matters provided for in the guidelines and the early filing of material and information related thereto, with appropriate advance discussions with Ministries and other affected bodies, will, it is hoped, facilitate the orderly processing of applications.

PART I - Data to be Filed

1. The applicant for leave to construct a pipeline or facility, should prepare and file maps or recent air photo mosaics of 1:50,000 or larger scale showing the following:
  - a) topographic information;
  - b) general route location;
  - c) location of existing and proposed compressor and pump stations, valve and metering stations, line valves and tankage installations;
  - d) all important or sensitive floral and faunal areas traversed by or adjacent to the proposed route;
  - e) all important or sensitive geological landforms and features traversed by or adjacent to the proposed route;
  - f) all established recreation areas traversed by or adjacent to the proposed route;
  - g) all known areas utilized for the purpose of organized outdoor education and interpretation traversed by or adjacent to the proposed route;
  - h) soil capability for agriculture as defined in the Canada Land Inventory;
  - i) the geographical distribution of marshes and organic soils and areas known to be subject to physical hazards such as, but not limited to,





landslides, mudflows, avalanches, earthquakes, fire risks, slope instability;

- j) the distribution of present land use within the probable zone of influence on either side of the proposed pipeline location, using the following classification:
  - i) Agriculture such as:
    - crops
    - dairying - mixed farming
    - grazing - livestock
    - poultry
    - fruit and vegetables
  - ii) Forest resources such as:
    - forests and woodlots
    - shelter and other protection belts
    - seed production stands
    - agreement forests
    - forests lands managed by the Ministry of Natural Resources
  - iii) Mineral resources such as:
    - existing oil and gas pools
    - existing pits and quarries
    - any known important mineral deposits
  - iv) Crown Reserves, Crown Lands, special agreement lands and lands owned or held by public agencies, such as:
    - fish sanctuaries
    - wildlife management areas
    - provincial parks and reserves or national parks
    - ecological reserves
    - areas administered by Conservation Authorities
  - v) Urban such as:
    - residential
    - commercial
    - industrial
    - recreational and open space
    - institutional
  - vi) Municipal and rural water supply such as:
    - sources, e.g. reservoirs, watercourses, recharge areas
    - intake and discharge points





vii) Sites, areas, buildings or structures of recognized archeological, historical or architectural significance.

viii) Rivers and streams having governmental lamprey control programs.

2. The applicant for leave to construct a pipeline or facility should file with the application, where appropriate, the following information:

- a) general survey of ground conditions along the pipeline route in sufficient detail to identify potential soil instability, susceptibility to erosion, potential effect on agricultural soils, and the identification of soil regimes especially sensitive to construction; e.g., sensitive marine clays;
- b) summary of construction methods and proposed methods of minimizing damage to and rehabilitating the easement, including:
  - i) methods of maintaining slope stability;
  - ii) design and methods of construction of permanent facilities that will harmonize with the natural setting where appropriate;
  - iii) plans for revegetation or alternative methods of providing an insulative cover on which natural vegetation can occur, where appropriate;
  - iv) plant material species, composition, density and proposed location of areas where vegetation will be re-established;
  - v) methods to be used to minimize impact on soil productivity;
  - vi) methods to be used for all water crossings;
  - vii) location of any watercourse crossing to be used by motorized vehicles, excluding boats.
- c) details as to the location of any new access roads which will be cleared by the applicant and any planned areas to be used for work camps, storage, or other such purposes;



- d) a plan showing the location of known shallow wells in or near the general route location;
  - e) project time schedule;
  - f) details as to the proposed location and nature of any other special design and construction features to minimize environmental impact;
  - g) an environmental analysis noting fish species, spawning times and locations of spawning areas for each watercourse.
3. The applicant should file with the application a description of the process whereby construction crews will be informed of the considerations expressed in these guidelines and the precautions that will be taken to ensure that these are respected.

## PART II - Routing

### 1. Prime Agricultural Lands

Prime agricultural lands should be avoided.

### 2. Forests

- a) Seed production stands should be avoided.
- b) Designated forest areas and agreement forecasts should be avoided.
- c) To avoid clear cutting, the route should follow the interface between woodlands and cleared lands, wherever practicable.

### 3. Flora and Fauna

- a) Compliance is required with The Endangered Species Act, 1971.
- b) The route should avoid existing deer yards.





- c) The route should avoid wetland areas used as feeding, breeding or staging areas by migratory water fowl or as a habitat for fur-bearing animals.

#### 4. Lakes and Watercourses

- a) For liquid hydrocarbon pipelines the easement should be a minimum of 1,000 feet from the shoreline of any lake set aside for recreational and access purposes by the Ministry of Natural Resources.
- b) Where pipelines parallel lakes or watercourses, trees and vegetation should be left in the natural condition between the easement and the shoreline.
- c) The route should avoid known fish spawning areas.

#### 5. Parks, Park Reserves and Areas of Outdoor Recreation and Education

- a) Pipelines should avoid all classes of provincial parks, park reserves or corresponding park zones.
- b) Lands designated as an archaeological site or an historical site must be avoided unless a permit is granted under The Archaeological and Historic Sites Protection Act.
- c) Areas of important recreation potential should be avoided.
- d) All known areas used for the purpose of organized outdoor education and interpretation should be avoided.

#### 6. Minerals

Pits, quarries, mineral deposits including oil and gas fields, and designated gas storage areas should be avoided.

#### 7. Landforms

- a) Rare or endangered landforms or other types of earth science features should be avoided.





- b) Geological features and landforms, which are representative of former geo-environments and climates, should be avoided.

8. Land Use

In proposing a route, the applicant should consider official plans and restricted area by-laws.

9. Notice to Landowners

The applicant should ensure that the landowner has sufficient advance notice of the proposed location of the pipeline, and the land required, so that he can assess the consequences of the pipeline construction before any request is tendered for the landowners signature for an option, an agreement for easement, or temporary working rights. A sketch or drawing showing the proposed location of the pipeline on that property should be left with the landowner.

PART III - Construction

1. Scheduling

- a) A finalized schedule of construction for each section of the pipeline should be given to the landowner and made available to interested parties well in advance of the commencement of any construction on that section.
- b) Working hours of construction crews should be arranged so that construction activities have minimal effect on nearby residents. Special attention should be paid to the time of operation of heavy construction equipment and drilling machines, and to blasting schedules.



2. Equipment Fuelling

Refuelling and maintenance shall be carried out in such a manner and with such precautions as to avoid contamination of water table, soil or watercourses.

3. Forests

- a) When passing through woodlots and forests, slash width should be kept to the minimum consistent with construction requirements. In order to minimize the "funnel" effect of the elements and the visual impact of a cleared corridor through the forested area, consideration should be given to leaving tree screens where subsoil permits boring under the trees, or to planting tree screens after construction.
- b) Merchantable timber removed in preparation of the easement except that used during construction should be cut in standard lengths and piled in locations from which it can be hauled readily, unless other prior arrangements are made with the owner.
- c) All clearing and disposal of slash material shall be in accordance with all legislation included in, but not limited to:-
  - The Forest Fires Prevention Act
  - The Environmental Protection Act
  - The Fire Guardians Act.
- d) In forested wetlands, cross drainage at intervals of not more than 150 feet should be provided to prevent blockage of surface water flow.
- e) Additional rip-rap, where required, should come from other sections of cleared easement and not from adjacent woodlots.
- f) Identification of large, old or uncommon specimen trees should be made prior to clearing of the easement. These trees should be flagged or protected by shields to ensure preservation.
- g) Equipment operators should be instructed not to damage trees off the easement or those identified in clause f) above.
- h) Following construction damaged tree limbs should be cleanly removed, all damaged branches should be trimmed and tree surgeon paint should be applied to cuts.





- i) All elm trees cleared during construction should be burned, subject to clause c) above.
- j) When removing tree stumps or boulders during the clearing of the easement, unnecessary removal of topsoil should be avoided.

4. Flora and Fauna

- a) Pipeline construction or operation should not cause permanent interference with wildlife management areas.
- b) Construction machinery and equipment storage should not destroy or interfere with the habitat of any species of fauna or flora declared in regulations to be threatened with extinction.

5. Roads and Camps

- a) In the Ministry of Natural Resources' Fire Districts, the construction of all permanent or temporary roads and camps located off the easement and south of latitude 54° North must be authorized by a separate work permit under The Forest Fires Prevention Act obtained from the District Manager. A land use or other tenure document under The Public Lands Act is required for all camps or improvements on Crown Lands.
- b) Unless otherwise agreed, any temporary access road, camp or storage area not required after construction is to be closed and returned to the original condition as far as is practicable.
- c) The applicant must comply with the provisions of The Ontario Water Resources Act and The Environmental Protection Act with respect to disposal of gaseous, liquid and solid wastes produced as a result of construction operations.

6. Crossings of Lakes and Watercourses

- a) The appropriate authority must be notified in advance of the schedule and method for each crossing of a watercourse or body of water.
- b) Timing of construction should take into consideration other water users and should minimize interference with fish migration, spawning or egg incubation.



- c) Where necessary to minimize stream bed erosion, clean granular material should be available prior to trenching and should be used to cover the pipe as soon as it is laid across the watercourse.
- d) There should be no blasting in or adjacent to watercourse beds during fish migration, spawning or egg incubation.
- e) Wherever temporary weirs or coffer dams are used at watercrossings to form settling basins for the control of siltation, adequate stream flow should be provided to avoid interference with downstream water uses. Settling basins should be maintained and cleaned of silt, sand and debris as required to minimize construction siltation.
- f) Appropriate trench excavation methods should be employed to minimize materials from the pipeline trench flowing into bodies of water, giving due consideration to the soil, terrain, ground cover, side slopes and weather conditions involved. The cutting of the trench at the bank of the watercourse should be delayed until the actual pipelaying is to take place.
- g) To avoid creation of an artificial drainage effect in the trench ('French Drain') gravel backfill should be restricted to excavation in the stream bed itself.
- h) Reference should be made to The Environmental Protection Act and The Ontario Water Resources Act prior to the using of water for testing or cleaning of pipeline.
- i) The banks of the watercourse should be stabilized during and upon completion of the construction to avoid such problems as erosion, slumping or slipping.
- j) Removal of vegetation from the slope approaches to the watercourse should be kept to the minimum necessary for construction. Areas cleared of vegetation should be revegetated as soon as seasonal conditions permit.
- k) Final stream channel clean-up must include removal of any temporary structures, reshaping of the stream to a suitable configuration, and removal of all construction material and debris.





- l) Construction operations should be timed to avoid recreational lakes or rivers during peak use periods.
- m) Where necessary, herring-bone berms or other methods should be used along the route of excavation to direct surface run-off away from newly consolidated areas.
- n) Aquatic plants uprooted or cut prior to or during trenching operations should be contained and deposited on land.
- o) To avoid disruption of the bed and the deposition of grease or oil in water, vehicles should not travel along the bed of a watercourse.
- p) All pipelines, either underwater or located in areas subjected to flooding, should be buried below the maximum anticipated depth of scour.

7. Prime Agricultural Lands

- a) Reasonable notice of the scheduling of the movement of materials, construction and normal maintenance and repairs should be given to the landowner and occupant.
- b) The landowner should be consulted prior to construction regarding the location of tile drains.
- c) With a view to minimizing, to the degree practicable, the adverse effect of construction on the agricultural potential of the land, on request of the landowner, the applicant prior to trenching should remove topsoil along the trench area, stockpile it separately from sub-soil and replace it on completion of construction.
- d) Construction should be scheduled and construction equipment and techniques selected so as to minimize soil compaction. The applicant will make every reasonable effort to eliminate mixing of subsoil with topsoil and eliminate compaction which has occurred during construction.
- e) Upon the request of the landowner the applicant will remove excess subsoil resulting from construction after making adequate provision for normal subsidence.



- f) Appropriate provision should be made for surface and sub-surface drainage during the construction period
- g) In determining the depth of cover over the pipeline and its attachments, consideration should be given to the location and depth of existing and known future drainage tile systems. The depth of the proposed pipeline should be noted on the Grant of Easement agreement at the time of negotiation with the landowner.
- h) Tile drains that are cut during the trenching operation should be suitably plugged to prevent the entrance of debris and silt into the drainage system.
- i) Following construction, the applicant shall repair or replace in a good and workmanlike manner, tile drainage damaged or disrupted by construction procedures or operations connected with the pipeline.
- j) All open drainage ditches should be repaired properly utilizing appropriate soil stabilization procedures.
- k) The applicant's attention is drawn to the provisions of The Drainage Act.
- l) Points of entry to the property and access routes from the point of entry to the easement or temporary work area, to be used during construction and normal maintenance and repair, should be selected after consultation with the landowner.
- m) Where requested by the landowner, access routes across the easement or temporary work area should be provided during all phases of construction for all normal movements of farm equipment or animals.
- n) Prior to cutting wire fences, properly braced anchor posts should be installed on both sides of the working area and the wire securely fastened to them to prevent loss of tension on the remaining fence sections.
- o) The applicant should repair or replace all fences opened, removed or damaged.
- p) All work with heavy equipment should be stopped during excessively wet weather.





- q) Excess excavated material, stones, construction debris, trees, tree stumps and brush should be disposed of in a manner compatible with the existing land use.

8. Parks, Park Reserves and Areas of Outdoor Recreation

The applicant should have contingency plans to deal with the discovery, during construction, of natural features and historical and archaeological sites of significance.

9. Restoration - Open Terrain

- a) On slopes through open terrain, methods such as deflection berms, slope contouring, terracing and furrow ploughing, along with other reasonable methods, should be used where appropriate to avoid erosion and provide stabilization during and after construction.
- b) Methods such as mulching or jute matting should also be considered to prevent erosion and assist in revegetation.
- c) On long slopes where the trench is backfilled with porous material, the creation of 'French Drains' should be avoided by installing plugs at suitable intervals.

10. Landforms

- a) Deformation of landforms during construction should be minimized. Where deformation does occur the site should be restored to its original topography as far as is practicable.
- b) Landforms and geological features referred to in Part II, section 7 (Landforms) should not be used as a source of construction material, whether or not these landforms or features are adjacent to the pipeline route.



## PART IV - Operation and Maintenance Procedures

### 1. Pesticides

Attention is drawn to The Pesticides Act, 1973, as administered by the Ministry of the Environment.

The term pesticides as defined in that Act includes herbicides.

### 2. Above Ground Installations

- a) An adequate screening program should be maintained so that above ground installations such as pump stations or valve installations are aesthetically harmonious where appropriate with the local environment.
- b) Appropriate noise attenuation features should be used and maintained.

### 3. Operation and Maintenance Plans

Attention is drawn to the requirement for a plan of operating and maintenance procedures for gas pipelines as set out in the regulations under The Energy Act, 1971, and a similar plan for oil pipelines as approved by the Energy/<sup>Safety</sup>Branch, Ministry of Consumer and Commercial Relations.

## PART V - Inspectors

The Ontario Energy Board appoints an inspector whose primary function is to ensure compliance with the terms and conditions of any Board order dealing with pipeline construction. He also acts as a liaison between the property owner and the pipeline company.

Various government ministries may also provide inspectors for their particular purposes.





## GLOSSARY

### Agreement Forests

- natural or established forests located upon lands the owners of which have entered into agreement with the Minister of Natural Resources for the planting of nursery stock or the improvement of the woodlands on such lands.

### Crown Lands

- lands, including lands covered with water, vested in Her Majesty in right of Ontario and under the management of the Minister of Natural Resources, and includes the lands in respect of which a lease, licence of occupation or permit has been granted or issued under The Mining Act, R.S.O., The Provincial Parks Act, R.S.O., or The Public Lands Act, R.S.O.

### Crown Reserves

- areas of public lands set apart by the Lieutenant Governor in Council for any purpose that will benefit research in, and the management, utilization and administration of the public lands and forests.

### Ecological Reserves

- those public lands set apart by the Lieutenant Governor in Council in which research and educational activities may be carried on with respect to the flora and fauna of the area.

### Designated Forest Areas

- areas denoted by the Ministry of Natural Resources as having high economic, natural, scientific, historical or archaeological value.

### Forb

- herb other than grass.



### Habitat

- the place or type of site where a plant or animal naturally or normally lives and grows.

### Herb

- a seed producing annual, biennial, or perennial that does not develop persistent woody tissue but dies down at the end of a growing season.

### Landform

- feature of the earth's surface attributable to natural causes.

### Marsh

- tract of soft wet land usually characterized by grasses or cattails.

### Park Zones

- those areas of a provincial park defined by the Minister of Natural Resources on maps or plans and designated as zones and classified as being historic, multiple use, natural primitive recreational zones or otherwise.

### Prime Agricultural Lands

- all lands in Classes 1, 2, 3, and 4 as defined in the soil capability for agriculture in the Canada Land Inventory.
- all lands which have a high capability for the production of specialty crops due to special soils or climate.
- areas where farms exhibit characteristics of ongoing viable agriculture.
- areas where local market conditions ensure agricultural viability where it might not exist otherwise.

### Provincial Parks Reserves

- public areas set apart by the Lieutenant Governor in Council and dedicated to the people of the Province of





Ontario and others who may use them for their health-ful enjoyment and education.

Rip-rap

- timber, trees and branches placed to form a mat or subbase for roads or work areas.

Seed Production Stands

- stands of tree species known to produce seed of a desired abundance and quality and which have the greatest inherent capacity to produce and survive.

Special Agreement Lands

- lands required for the carrying out of a project by other than the Crown or its agents, and where the approval in writing of the Minister of Natural Resources has been received for such purpose.

Spread

- crew of men and equipment required for construction of a specified section of pipeline.

Wetland

- land covered or saturated with water.





